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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,295	08/16/2001	David F. Craddock	AUS920010493US1	3184

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EXAMINER
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RYMAN, DANIEL J

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/931,295

Applicant(s)

CRADDOCK ET AL.

Examiner

Daniel J. Ryman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-15, 17-25 and 27-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 4, 14 and 24 is/are allowed.  
6) ☒ Claim(s) 1-3, 5, 9-13, 15, 19-23, 25, 29 and 30 is/are rejected.  
7) ☒ Claim(s) 7, 8, 17, 18, 27 and 28 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-3, 5, 9-13, 15, 19-23, 25, 29, and 30 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 11-13, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli et al. (USPN 6,480,500), of record, in view of Applicant's Admitted Prior Art.
4. Regarding claims 1, 11, and 21, Erimli discloses a method of and apparatus for establishing a connection between a first node (host channel adapter) and a second node (target channel adapter) in a system area network (Infiniband system) (col. 1, lines 9-12), the method comprising the steps of and the apparatus comprising means for: allocating a virtual connection unit pair (virtual queue pair) to the connection (col. 1, lines 51-54 and col. 8, lines 19-22), the virtual connection unit pair being associated with the first node (col. 1, lines 51-54 and col. 8, lines 19-22); associating the virtual connection unit pair (virtual queue pair) with a physical connection unit pair (physical queue pair) that is used for transporting data using the connection (col. 1, lines 51-54 and col. 8, lines 19-22), the physical connection unit pair being associated with the first node (col. 1, lines 51-54 and col. 8, lines 19-22); establishing the connection between the virtual connection unit pair

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of the first node and a connection unit pair of the second node (col. 1, lines 9-12; col. 1, lines 51-54; and col. 5, lines 19-37); transmitting one or more messages between the first node and the second node over the connection using the virtual connection unit pair (col. 1, lines 9-12; col. 1, lines 51-54; and col. 5, lines 19-37); and tearing down the connection between the first and the second node (col. 4, lines 46-50 and col. 4, line 66-col. 5, line 12).

Erimli does not expressly disclose that tearing down the connection includes placing the virtual connection unit pair in a time-wait state. Applicant admits as prior art that tearing down the connection includes placing a connection unit pair in a time-wait state “in order to make sure that all data packets in the SAN fabric at the time the connection is torn down have time to be routed to their destination” (pg. 2, line 27-pg. 3, line 9). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the virtual connection unit pair in a time-wait state when tearing down the connection in order to make sure that all data packets in the SAN fabric at the time the connection is torn down have time to be routed to their destination.

5. Regarding claims 2, 12, and 22, Erimli in view of Applicant’s admitted prior art discloses that the connection unit pair is a queue pair (Erimli: col. 3, line 61-col. 4, line 3).

6. Regarding claims 3, 13, and 23, Erimli in view of Applicant’s admitted prior art discloses that the connection unit pair is an end-to-end context (Erimli: col. 1, lines 51-54; col. 3, line 61-col. 4, line 27; and col. 4, line 66-col. 5, line 12, esp. col. 5, lines 19-22) where the queue pair defines an end-to-end connection between two nodes.

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7. Claims 5, 10, 15, 20, 25, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli et al. (USPN 6,480,500), of record, in view of Applicant's Admitted Prior Art as applied to claims 1, 11, and 21 above, and further in view of Khalidi et al. (USPN 6,405,237), of record.

8. Regarding claims 5, 15, and 25, Erimli in view of Applicant's admitted prior art discloses that allocating a virtual connection unit pair to the connection includes: creating the virtual connection unit pair (Erimli: col. 8, lines 19-22), wherein the physical connection unit pair each comprises a send and receive queue for accessing the connection (Erimli: col. 4, lines 1-3).

Erimli in view of Applicant's admitted prior art does not expressly disclose selecting the virtual connection unit pair from a virtual connection unit pair pool. Khalidi teaches, in a system for transferring data over a network, using a pool of virtual buffers in order to "take advantage of locality in interprocess communication" (col. 1, line 66-col. 2, line 7 and col. 6, lines 6-9). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to select the virtual connection unit pair from a virtual connection unit pair pool in order to take advantage of locality in interprocess communication.

9. Regarding claims 10, 20, and 30, Erimli in view of Applicant's admitted prior art in further view of Khalidi suggests that the virtual connection unit pair is selected from virtual connection unit pairs in the virtual connection unit pair pool that are not in a busy state (Applicant: pg. 2, line 27-pg. 3, line 9) where a virtual connection unit pair that is in a time-wait state should not be used for another connection since this will make it unable to receive the remaining packets.

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10. Claims 9, 19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli et al. (USPN 6,480,500), of record, in view of Applicant's Admitted Prior Art as applied to claims 1, 11, and 21 above, and further in view of Bailey et al. (USPN 6,832,310), of record.

11. Regarding claims 9, 19, and 29, Erimli in view of Applicant's admitted prior art does not expressly disclose placing the virtual connection unit pair in a time-wait state includes setting an availability bit associated with the virtual connection unit pair. Bailey teaches, in an Infiniband system, setting a busy bit in a queue pair to signal that the queue pair is unavailable (Bailey: Fig. 3B; col. 4, line 65-col. 5, line 1; and col. 5, lines 22-45). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to set an availability bit associated with the virtual connection unit part when placing the virtual connection unit pair in a time-wait state in order to signal that the queue pair is unavailable.

***Allowable Subject Matter***

12. Claims 4, 14, and 24 are allowed. The prior art discloses that the virtual connection unit pair comprises an availability bit (Busy Bit) (Bailey: col. 4, line 65-col. 5, line 1 and col. 5, lines 22-45) and a virtual connection unit pair identifier (Bailey: col. 4, line 65-col. 5, line 1 and Erimli: col. 5, lines 19-22). However, the prior art does not disclose or fairly suggest that the virtual connection unit pair has *only* a virtual connection unit pair identifier and an availability bit.

13. Claims 7, 8, 17, 18, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose

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or fairly suggest that the physical connection unit pair associated with the first node is not placed in a time-wait state, and thus available for use with another connection while the virtual connection unit pair is in the time wait-state.

### *Conclusion*

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*DJR*

Daniel J. Ryman  
Examiner  
Art Unit 2665

  
**HUY D. VU**  
**SUPERVISORY PATENT EXAMINER**  
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